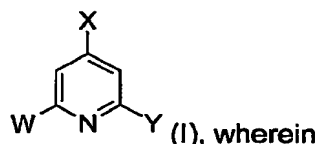
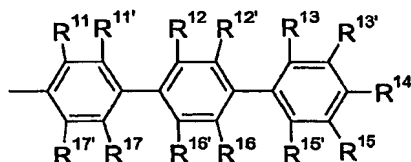


Claims

1. A pyridine compound of formula I

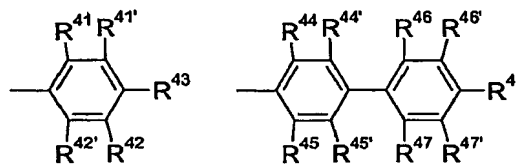


at least one of the groups W, X and Y is a group of formula

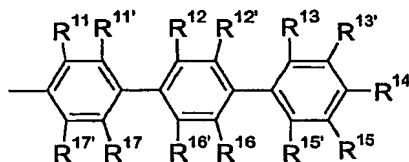


, or at least one of the groups W, X and Y is a condensed C₁₀-C₃₀aryl group, such as naphthyl, as-indacnyl, s-indacenyl, acenaphthyl, fluorenyl, phenalenyl, phenanthrenyl, anthracenyl, fluoranthenyl, triphenlenyl, chrysenyl, naphthacen, picenyl, perylenyl, pentaphenyl, hexacenyl, or pyrenyl, which can be substituted by one or more groups G;

and the other groups are independently of each other an aryl group or a heteroaryl

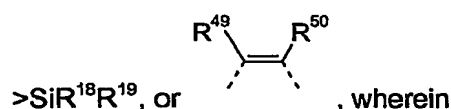


group, especially a group of formula



, wherein

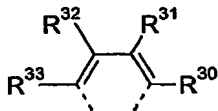
R¹¹, R^{11'}, R¹², R^{12'}, R¹³, R^{13'}, R¹⁵, R^{15'}, R¹⁶, R^{16'}, R¹⁷, R^{17'}, R⁴¹, R^{41'}, R⁴², R^{42'}, R⁴⁴, R^{44'}, R⁴⁵, R^{45'}, R⁴⁶, R^{46'}, R⁴⁷ and R^{47'} are independently of each other H, E, C₆-C₁₈aryl; C₆-C₁₈aryl which is substituted by G; C₁-C₁₈alkyl; C₁-C₁₈alkyl which is substituted by E and/or interrupted by D; C₇-C₁₈aralkyl; or C₇-C₁₈aralkyl which is substituted by G; or R^{11'} and R¹², R^{12'} and R¹³, R¹⁵ and R¹⁶, R^{16'} and R¹⁷, R^{44'} and R⁴⁶ and/or R^{45'} and R⁴⁷ are each a divalent group L¹ selected from an oxygen atom, an sulfur atom, >CR¹⁸R¹⁹



R¹⁸ and R¹⁹ are independently of each other C₁-C₁₈alkyl; C₁-C₁₈alkoxy, C₆-C₁₈aryl; C₇-C₁₈aralkyl; or

42

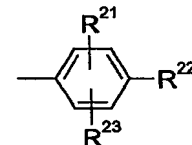
R^{11} and $R^{11'}$, R^{12} and $R^{12'}$, R^{13} and $R^{13'}$, $R^{13'}$ and R^{14} , R^{14} and R^{15} , R^{15} and $R^{15'}$, R^{16} and $R^{16'}$, R^{17} and $R^{17'}$, R^{41} and $R^{41'}$, R^{42} and $R^{42'}$, $R^{42'}$ and R^{43} , $R^{41'}$ and R^{43} , R^{44} and $R^{44'}$, R^{45} and $R^{45'}$, R^{46} and $R^{46'}$, R^{47} and $R^{47'}$, $R^{46'}$ and R^{48} and/or $R^{47'}$ and R^{48} are each a divalent



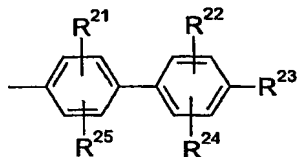
group, wherein

R^{30} , R^{31} , R^{32} , R^{33} , R^{49} and R^{50} are independently of each other H, C_1 - C_{18} alkyl; C_1 - C_{18} alkyl, which is substituted by E and/or interrupted by D; E; C_6 - C_{18} aryl; C_6 - C_{18} aryl, which is substituted by G;

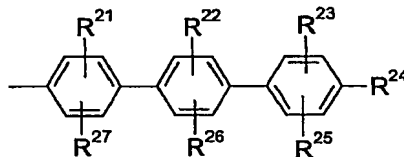
R^{14} is H, C_2 - C_{30} heteroaryl, or C_2 - C_{30} heteroaryl, which is substituted by G, $-NR^{70}R^{71}$; C_6 - C_{30} aryl, or C_6 - C_{30} aryl which is substituted by G, C_1 - C_{18} alkyl; or C_1 - C_{18} alkyl which is



substituted by E and/or interrupted by D; especially



, or



, wherein R^{21} , R^{22} , R^{23} ,

R^{24} , R^{25} , R^{26} and R^{27} are independently of each other H, E, C_1 - C_{18} alkyl; C_1 - C_{18} alkyl which is substituted by E and/or interrupted by D; E; C_7 - C_{18} aralkyl; C_7 - C_{18} aralkyl which is substituted by G;

R^{43} and R^{48} are independently of each other H, E; C_1 - C_{18} alkyl; C_1 - C_{18} alkyl, which is substituted by E and/or interrupted by D; C_2 - C_{30} heteroaryl; or C_2 - C_{30} heteroaryl, which is substituted by G; $-NR^{70}R^{71}$, wherein R^{70} and R^{71} are independently of each other a C_6 - C_{18} aryl group, which can be substituted by G; C_7 - C_{18} aralkyl; C_7 - C_{18} aralkyl which is substituted by G, or is a condensed C_{10} - C_{30} aryl group, such as naphthyl, as-indacnyl, s-indacenyl, acenaphthyl, fluorenyl, phenalenyl, phenanthrenyl, anthracenyl, fluoranthrenyl, triphenlenyl, chrysenyl, naphthacen, picenyl, perylenyl, pentaphenyl, hexacenyl, or pyrenyl, which can be substituted by one or more groups G;

or R^{70} and R^{71} together with the nitrogen atom to which they are bonded form a five or six-membered ring,

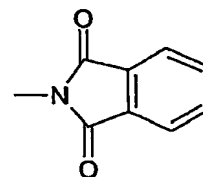
D is $-CO-$; $-COO-$; $-OCOO-$; $-S-$; $-SO-$; $-SO_2-$; $-O-$; $-NR^5-$; $SiR^{61}R^{62}-$; $-POR^5-$; $-CR^{63}=CR^{64}-$; or $-C\equiv C-$;

E is $-OR^5$; $-SR^5$; $-NR^5R^6$; $-COR^8$; $-COOR^7$; $-CONR^5R^6$; $-CN$; or halogen;

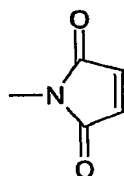
G is E, or C_1 - C_{18} alkyl, wherein

43

R^5 and R^6 are independently of each other C_6-C_{18} aryl; C_6-C_{18} aryl which is substituted by C_1-C_{18} alkyl, C_1-C_{18} alkyl; or C_1-C_{18} alkyl which is interrupted by $-O-$; or



R^5 and R^6 together form a five or six membered ring, in particular



or

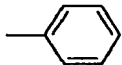
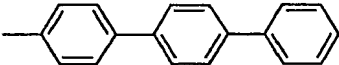
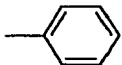
R^7 is C_6-C_{18} aryl; C_6-C_{18} aryl which is substituted by C_1-C_{18} alkyl, C_1-C_{18} alkyl; or C_1-C_{18} alkyl which is interrupted by $-O-$;

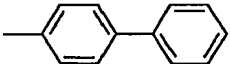
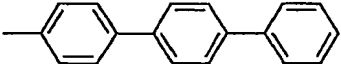
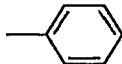
R^8 is C_7-C_{12} alkylaryl; C_1-C_{18} alkyl; or C_1-C_{18} alkyl which is interrupted by $-O-$;

R^{61} and R^{62} are independently of each other C_6-C_{18} aryl; C_6-C_{18} aryl which is substituted by C_1-C_{18} alkyl, C_1-C_{18} alkyl; or C_1-C_{18} alkyl which is interrupted by $-O-$, and

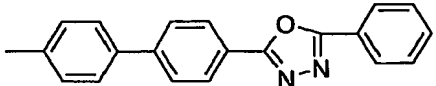
R^{63} and R^{64} are independently of each other H, C_6-C_{18} aryl; C_6-C_{18} aryl which is substituted by C_1-C_{18} alkyl, C_1-C_{18} alkyl; or C_1-C_{18} alkyl which is interrupted by $-O-$; with

the proviso that compounds of formula I, wherein Y is  and

X and W are ; Y is , X is  and W is

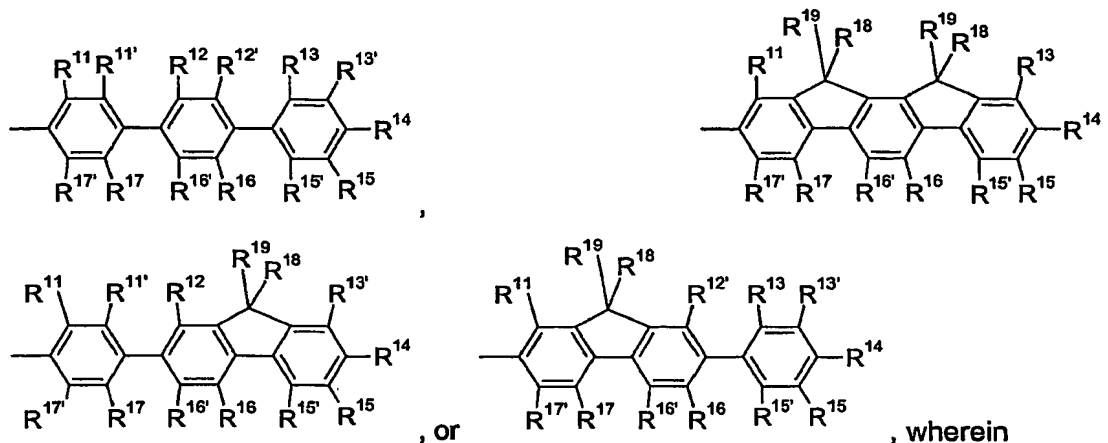
; Y and W are  and X is ; W

is , X is  and Y is

 are excluded.

2. A pyridine compound of formula I according to claim 1, wherein W, X and Y are independently of each other a group of formula

44



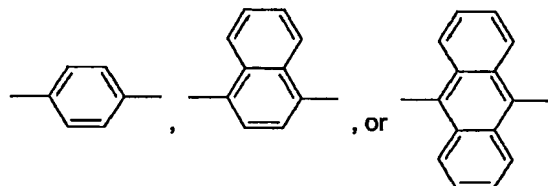
R^{11} , $R^{11'}$, R^{12} , $R^{12'}$, R^{13} , $R^{13'}$, R^{15} , $R^{15'}$, R^{16} , $R^{16'}$, R^{17} and $R^{17'}$ are independently of each other H, C_6 - C_{18} aryl; C_6 - C_{18} aryl which is substituted by G; E, C_1 - C_{18} alkyl; C_1 - C_{18} alkyl which is substituted by E and/or interrupted by D; C_7 - C_{18} aralkyl; C_7 - C_{18} aralkyl which is substituted by G; and

D, E, R^{14} , R^{18} and R^{19} are as defined in claim 1, or

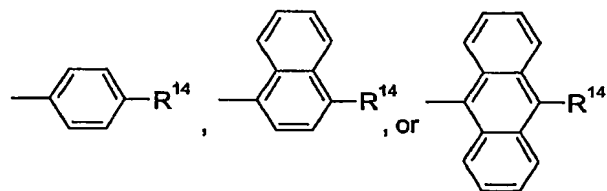
W is a group of the formula $-W^1-W^2-W^3$,

X is a group of the formula $-X^1-X^2-X^3$ and

Y is a group of the formula $-Y^1-Y^2-Y^3$, wherein W^1 , W^2 , X^1 , X^2 , Y^1 and Y^2 are independently of each other a group of formula



and W^3 , X^3 and Y^3 are independently of



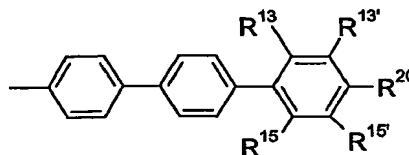
each other a group of formula
wherein R^{14} is as defined above.

3. The pyridine compound according to claim 1 or 2, wherein R^{11} , $R^{11'}$, R^{12} , $R^{12'}$, R^{13} , $R^{13'}$, R^{15} , $R^{15'}$, R^{16} , $R^{16'}$, R^{17} and $R^{17'}$, R^{41} , $R^{41'}$, R^{42} , $R^{42'}$, R^{44} , $R^{44'}$, R^{45} , $R^{45'}$, R^{46} , $R^{46'}$, R^{47} , and $R^{47'}$ as well as R^{14} , R^{43} , and R^{48} are independently of each other H, E; or C_1 - C_8 alkyl; wherein E is $-OR^5$; $-SR^5$; $-NR^5R^6$; $-COR^8$; $-COOR^7$; $-CONR^5R^6$; $-CN$; $-OCOOR^7$; or F; wherein R^5 and R^6 are independently of each other C_6 - C_{12} aryl, or C_1 - C_8 alkyl; R^7 is C_7 - C_{12} alkylaryl, or C_1 - C_8 alkyl; and

45

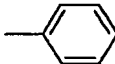
R^8 is C_6 - C_{12} aryl; or C_1 - C_8 alkyl.

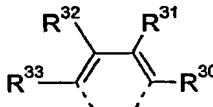
4. The pyridine compound according to any of claims 1 to 3, wherein

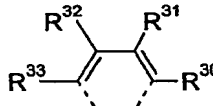


W, X and Y are a group of formula

wherein

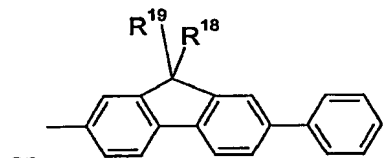
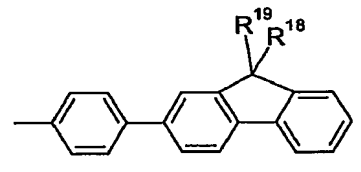
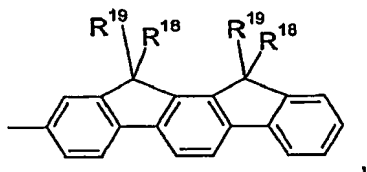
R^{13} , $R^{13'}$, R^{15} and $R^{15'}$ are H and R^{20} is H, especially , or R^{13} and R^{15} are H, $R^{13'}$ and $R^{15'}$ are independently of each other H, C_1 - C_8 alkyl, or C_1 - C_8 alkoxy, and R^{20} is H, C_1 - C_8 alkyl, or C_1 - C_8 alkoxy; or

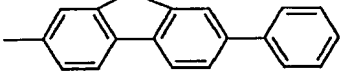
R^{13} , R^{15} and $R^{15'}$ are H, and $R^{13'}$ and R^{20} are , or

R^{20} , R^{15} and $R^{15'}$ are H, and R^{13} and $R^{13'}$ are , wherein R^{30} , R^{31} , R^{32} and R^{33} are H, C_1 - C_8 alkyl, or C_1 - C_8 alkoxy.

5. The pyridine compound according to any of claims 1 to 3, wherein

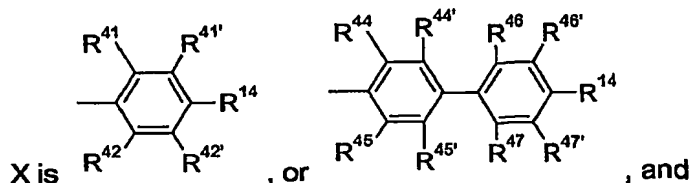
W, X and Y are independently of each other a group of formula



or , wherein R^{18} and R^{19} are independently of each other C_1 - C_8 alkyl.

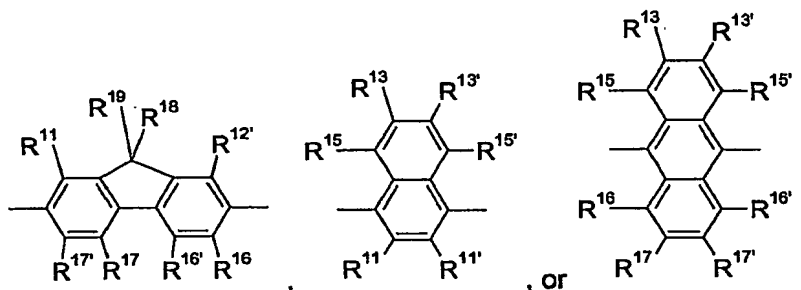
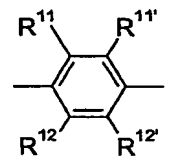
6. The pyridine compound according to claim 1, wherein

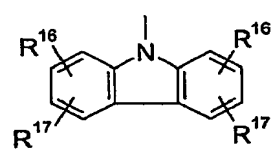
46

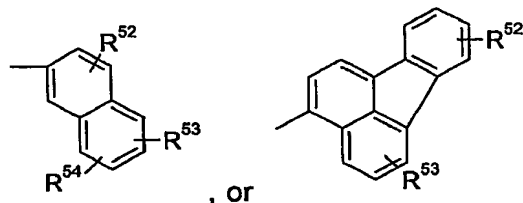
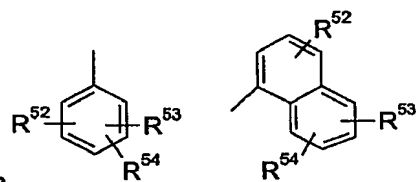


W and Y are a group of the formula $-W^1-(W^2)_b-W^3$, wherein b is 0, or, 1,

W^1 and W^2 are independently of each other a group of formula

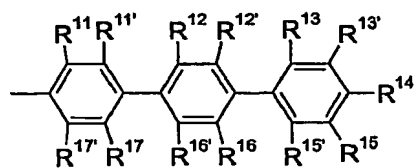


W^3 is a group of formula , or $-NR^{60}R^{61}$, wherein R^{60} and R^{61} are

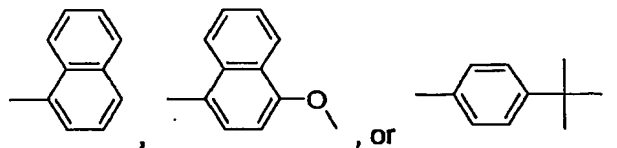
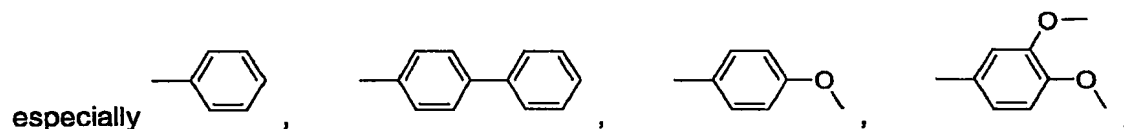
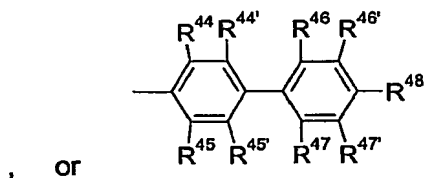
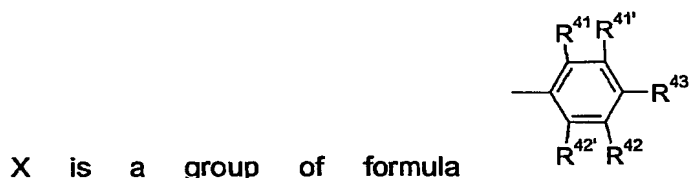
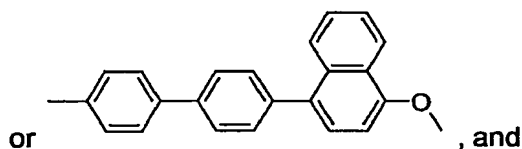
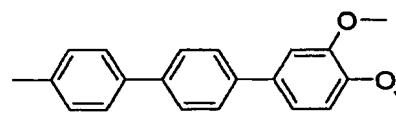
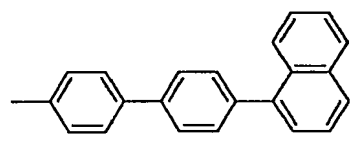
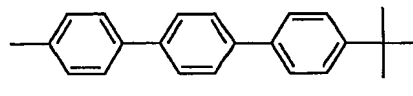
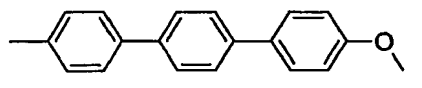
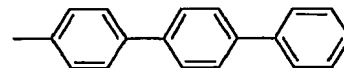


wherein R^{52} , R^{53} and R^{54} are independently of each other hydrogen, C_1 - C_8 alkyl, a hydroxyl group, a mercapto group, C_1 - C_8 alkoxy, C_1 - C_8 alkylthio, halogen, halo- C_1 - C_8 alkyl, a cyano group, an aldehyde group, a ketone group, a carboxyl group, an ester group, a carbamoyl group, an amino group, a nitro group, a silyl group or a siloxanyl group, wherein R^{11} , $R^{11'}$, R^{12} , $R^{12'}$, R^{13} , $R^{13'}$, R^{14} , R^{15} , $R^{15'}$, R^{16} , $R^{16'}$, R^{17} , $R^{17'}$, R^{18} , R^{19} , R^{41} , $R^{41'}$, R^{42} , $R^{42'}$, R^{44} , $R^{44'}$, R^{45} , $R^{45'}$, R^{46} , $R^{46'}$, R^{47} , and $R^{47'}$ are as defined in claim 1, or X, W and Y are a group of the formula $-W^1-(W^2)_b-W^3$, wherein b, W^1 , W^2 and W^3 are as defined above.

7. The pyridine compound according to claim 1, wherein
W and Y or W and X (= Y and X) are independently of each other a group of formula



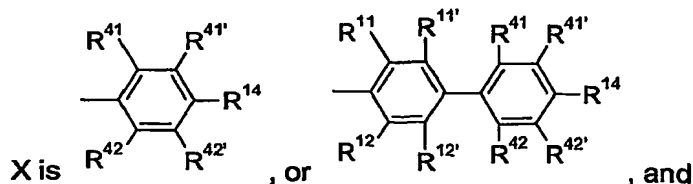
especially



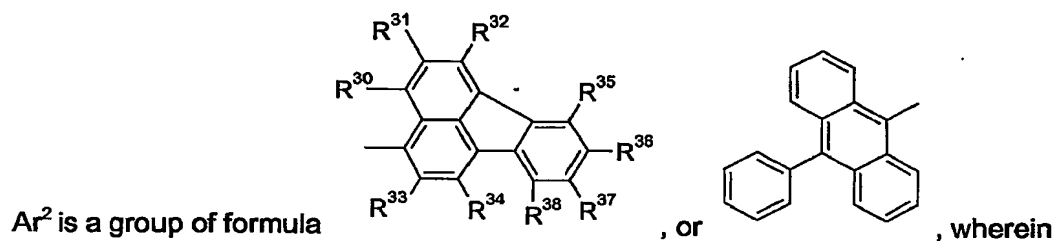
wherein R^{11} , $R^{11'}$, R^{12} , $R^{12'}$, R^{13} , $R^{13'}$, R^{14} , R^{15} , $R^{15'}$, R^{16} , $R^{16'}$, R^{17} , $R^{17'}$, R^{41} , $R^{41'}$, R^{42} , $R^{42'}$, R^{44} , $R^{44'}$, R^{45} , $R^{45'}$, R^{46} , $R^{46'}$, R^{47} , $R^{47'}$, R^{43} and R^{48} are defined as in claim 1, especially H, C_1 - C_8 alkyl, C_1 - C_8 alkoxy, or phenyl.

8. The pyridine compound according to claim 1, wherein

48



W and Y are a group Ar¹-Ar², wherein



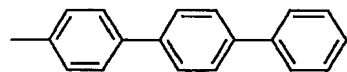
R³⁰, R³¹, R³², R³³, R³⁴, R³⁵, R³⁶, R³⁷ and R³⁸ are independently of each other H, E, C₆-C₁₈aryl; C₆-C₁₈aryl which is substituted by G; C₁-C₁₈alkyl; C₁-C₁₈alkyl which is substituted by E and/or interrupted by D; C₇-C₁₈aralkyl; or C₇-C₁₈aralkyl which is substituted by G;

e is an integer 1, or 2, or

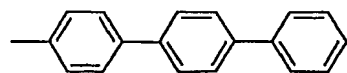
X, W and Y are a group Ar¹-Ar², wherein Ar¹ and Ar² are as defined above, and

D, E, G, R¹¹, R^{11'}, R¹², R^{12'}, R⁴¹, R^{41'}, R⁴², R^{42'}, and R¹⁴ are defined as in claim 1.

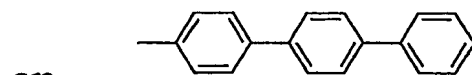
9. An electroluminescent device, comprising a pyridine compound of formula I according to any of claims 1 to 8 including compounds of formula I, wherein Y is



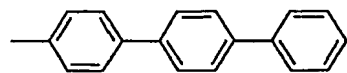
and X and W are ; Y is

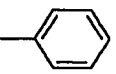


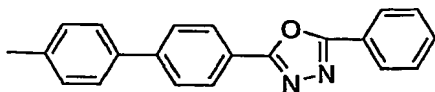
, X is  and W is ; Y and W



X is ; W is



, X is  and Y is



10. Electroluminescent device according to claim 9, wherein the electroluminescent device comprises in this order
 - (a) an anode
 - (b) a hole injecting layer and/or a hole transporting layer
 - (c) a light-emitting layer
 - (d) optionally an electron transporting layer and
 - (e) a cathode.
11. Electroluminescent device according to claim 10, wherein the pyridine compound of formula I forms the light-emitting layer.
12. Use of the pyridine compounds of formula I according to any of claims 1 to 8 for electrophotographic photoreceptors, photoelectric converters, solar cells, image sensors, dye lasers and electroluminescent devices.